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(71)(72) Applicant and Inventor: STONER, Theodore, A. [US/US]; Suite 309, 1660 S. Albion Street, Denver, CO 80220 (US).

(74) Agent: CRABTREE, Edwin, H.; Suite 575, 3773 Cherry Creek N. Drive, Denver, CO 80209 (US).

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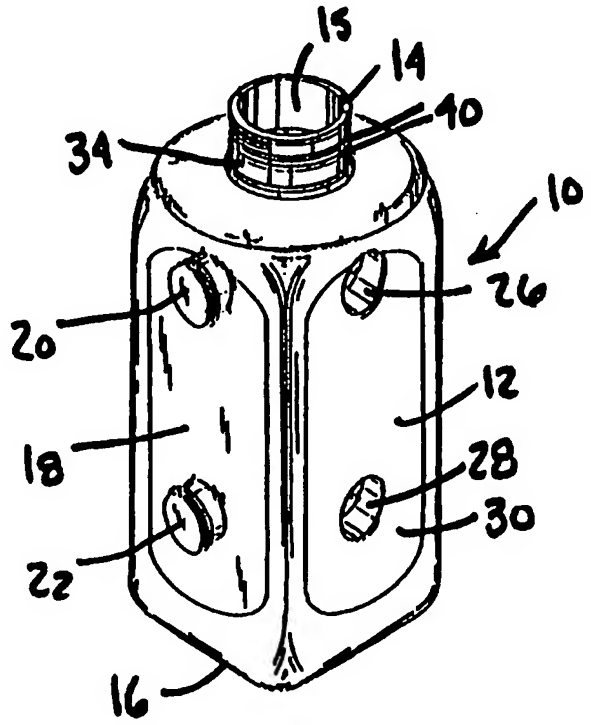
(54) Title: INTERLOCKING DRINK CONTAINERS AND RELATED PACKAGING

(57) Abstract

Containers (10) having a plurality of male lugs (20) and female cavities (26) in the sides thereof for interlocking one container with another during packaging and shipment of the containers and as toy building blocks for children before and after the use of the product in the containers. Each container (10) includes a hollow container body with a top lugs (20) extending outwardly therefrom, a second side portion with female cavities (26) therein, and a third and a fourth side portion.



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INTERLOCKING DRINK CONTAINERS AND RELATED PACKAGING

BACKGROUND OF THE INVENTION

(a) Field of the Invention

This invention relates to containers and more particularly, but not by way of limitation, to interlocking containers used with associated interlocking packaging as play objects such as building blocks, building bridges and the like.

(b) Discussion of Prior Art

Heretofore there have been a variety of different types of drink containers that are interlocking and used for holding a liquid therein. In German Patent 2,713,543 to Nagel, a plurality of hollow packaging container are disclosed for use as a toy building blocks. Each container includes square or round bosses with dovetail cross-sectional profiles which are designed for receipt in longitudinal grooves with a dovetail cross-sectional profiles in an opposite side of another container. In U.S. Patent 4,691,828 to Slusarczyk et al. a container for liquids is described with a pair of upstanding posts. The posts are received inside recesses of an adjacent container and in this manner the containers can be used as interlocking toy blocks.

In U.S. Patents 3,374,917 to Troy, 4,133,445 to Mandelbaum, 4,889,254 to Vola, 4,919,296 to Kirsh et al., 4,925,066 to Rosenbaum, 4,708,253 to Mednis, French Patent 2,395,905 to Mira and German Patent 2,729,285 to Hugel various types of containers, boxes, pill dispensers and storage devices are described having interlocking features.

None of the above mentioned patents specifically illustrate the unique structural features of the subject interlocking containers and associated interlocking packaging as described herein.

SUMMARY OF THE INVENTION

In view of the foregoing, it is an object of the present invention to provide containers which can be used for providing adults and children fruit drink and other

types of beverages and consumer edible and non-edible products and the containers can also be used as play objects before and after the use of the product in the containers.

Another object of the invention is to provide containers which are interlocking and by using two or more containers can be quickly connected as building blocks in a side by side relationship, end to end relationship, a right angle relationship, one on top of the other relationship and various other combinations.

Still another object of the subject interlocking containers is the use of interlocking packaging used in packaging and shipping the containers. The packaging wrap can be incorporated with the playing of building blocks wherein the ends and sides of the wrap are used in conjunction with male lugs on the containers for forming a bridge and other play objects.

A further object is the containers may include two, three, four or more male lugs for engaging a like amount of female cavities in an adjoining container. Also the containers are four sided and one or more sides of the container may include female cavities for engaging male lugs.

The subject interlocking containers include a hollow container body with a top portion, a bottom portion, a first side portion with male lugs extending outwardly therefrom, a second side portion with female cavities therein, and a third and a fourth side portion. The top portion includes an upwardly tapered neck portion. The neck portion has flanges or threads therearound for receiving a snap fit cap or threaded cap thereon. The male lugs and female cavities are centered along a center line through the length of the container. A first male lug and a first female cavity are centered one unit from the top of the top portion. Also, the first male lug is centered two units from a second male lug and the first female cavity is centered two units from a second female cavity. The second male lug and the second female cavity

are center one unit from the bottom of the bottom portion.

These and other objects of the present invention will become apparent to those familiar with containers used as play objects and the like from the following detailed description, showing novel construction, combination, and elements as herein described, and more particularly defined by the appended claims, it being understood that changes in the precise embodiments to the herein disclosed invention are meant to be included as coming within the scope of the claims, except insofar as they may be precluded by the prior art.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings illustrate complete preferred embodiments of the present invention according to the best modes presently devised for the practical application of the principles thereof, and in which:

FIG. 1 is a front perspective view of one embodiment of the interlocking container showing a first side portion with two male lugs extending outwardly therefrom.

FIG. 2 is a rear perspective view of the container shown in FIG. 1 showing a second side portion with two female cavities therein. separate containers

FIG. 3 is a front view of the container shown in FIG. 1 illustrating a center line through the length of the container and the spacing of the male lugs from the top and bottom portion of the container and the spacing between the male lugs.

FIGS. 4 and 5 illustrate front and rear perspective views of the interlocking container with female cavities in three of the four sides of the container. Also the container is shown having a top portion including a threaded neck portion for receiving a threaded cap.

FIGS. 6 and 7 show perspective views of another embodiment of the container wherein FIG. 6 illustrates a first side portion with three male lugs extending outwardly therefrom and FIG. 7 illustrates a second side portion with three female cavities therein.

FIG. 8 is a side view of three of the containers as

shown in FIGS. 1-3 with two of the containers laid end to end and a third container disposed on top of and connecting the two containers.

FIG. 9 is a front view of three of the containers as shown in FIGS. 1-3 with two of the containers disposed side by side and a third container disposed at right angles and connecting the two containers.

FIG. 10 is a perspective view of six of the containers as shown in FIGS. 1-3 ready for shipping wherein the packaging or packaging wrap is received around one side of the containers and the top and bottom of the containers. Note the packaging includes holes therein for indexing the male lugs of the containers and receiving the lugs therethrough.

FIG. 11 is a perspective view of the packaging shown in FIG. 10 where the packaging is used with the containers shown in FIGS. 6-7 for making a toy bridge.

FIG. 12 is a perspective view of six of the containers as shown in FIGS. 1-3 ready for shipping wherein the packaging or packaging wrap is received around one side of the containers and the top and bottom of the containers. In this example, the containers can be interlocked with the adjacent container.

FIG. 13 is a perspective view of the packaging shown in FIG. 12 where the packaging is used with the containers shown in FIGS. 6-7 for making a toy bridge.

FIG. 14 is a front perspective view of another embodiment of the interlocking container showing a horizontal side by side male lug relationship in a plurality of rows along the length of the container.

FIG. 15 is a rear perspective view of the embodiment shown in FIG. 14 showing a horizontal side by side female cavity relationship in a plurality of rows along the length of the container.

FIG. 16 is a front perspective view of another embodiment of the interlocking container illustrating a top female cavity and a bottom male lug.

FIG. 17 is a rear perspective view of the embodiment

shown in FIG. 16 illustrating a top male lug and a bottom male lug.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIG. 1, a front perspective view of one of the interlocking containers is shown having a general reference numeral 10. Also another embodiment of the container is shown in FIGS. 6-7 having general reference numeral 11. The containers may be made of a thermoplastic or like materials commonly used in the beverage industry. The containers shown in the drawings may be in the form of a bottle or like object for holding different types of food products. The subject interlocking container 10 includes a hollow container body 12 with a top portion 14 an opening 15 therein, a bottom portion 16 and a first side portion 18 with an annular shaped first male lug 20 and an annular shaped second male lug 22 extending outwardly therefrom.

In FIG. 2, a rear perspective view of the container 10 is shown having a second side portion 24 with an annular shaped first female cavity 26 and an annular shaped second female cavity 28 therein. The second side portion 24 is on the opposite side of the container from the first side portion 18. A third side portion 30 is shown in FIG. 1 and a fourth side portion 32 is shown in FIG. 2. Referring to both FIGS. 1 and 2, the top portion 14 includes an upwardly extending annular shaped tapered neck portion 34. The neck portion 34, in this example, has a flange 36 therearound for receiving a snap fit cap thereon. The snap fit cap is not shown in the drawings. In reviewing the drawings, it should be kept in mind that the male lugs 20 and 20 and female cavities 26 and 28, while shown annular in shape, may also have different geometric shapes for indexing and engagement without departing from the spirit and the scope of the invention as described. Also, the male lugs and female cavities may have ribs therearound for complimenting the interlock and mating between the male lugs when engaging the female cavities.

In FIG. 3, a front view of the container 10 is shown having a center line 38 through the length of the container. As shown in this drawing, the distance along the center line 38 from the top of the top portion 14 to the center of the first male lug 20 is a unit of one or less. The distance between the first male lug 20 and the second male lug 22 is a unit of two. The distance between the second male lug 22 and the bottom of the bottom portion 16 is a unit of one. Also, from the center line 38 and the center of the first male lug 20 and the second male lug 22 to the third side portion 30 is a unit of one or less. Further, from the center line 38 and center of the first male lug 20 and second male lug 22 to the fourth side portion 32 is a unit of one or less. For example and based on the above, if the container had a height of 8 inches and a width of 4 inches, the distance between the top portion 14 and the center of the first male lug 20 would be 2 inches and 4 inches between the first and second male lugs 20 and 22. The distance between the second male lug 22 and the bottom portion 16 would be 2 inches or less. The spacing from the first and second male lugs outwardly to the third and fourth side portions 30 and 32 would be 2 inches. The above mentioned spacing of the males lugs 20 and 22 are the same for the female cavities 26 and 28 shown in FIG. 2. The proper spacing as described is extremely important for the coupling of two or more containers 10 and 11 as shown in the drawings so that the containers can be interlocked as building blocks and the like as shown in FIGS. 8 and 9 and FIGS. 11 and 13.

In FIGS. 4 and 5, another front and rear perspective view of the container 10 is shown where the annular shaped neck portion 34 includes threads 40 therearound for receiving a threaded cap. The threaded cap is not shown in the drawings. Also, in these two drawings the container 10 is shown with the third side portion 30 and the fourth side portion 32 having an annular shaped first female cavity 26 and an annular shaped second female

cavity 28 similar to the cavities 26 and 28 found in the second side portion 32. The spacing of the cavities in the third and fourth side portions 30 and 32 is the same as described in FIG. 3. The addition of the female cavities in the other two sides of the container 10 provide added ways of interlocking two or more containers when used as building blocks. For example, the containers 10 shown in FIGS. 4 and 5 can be used as a corner building blocks when turning a right angle and coupled with the containers 10 shown in FIGS. 1 and 2 which have only the female cavities 26 and 28 in the second side portion 24.

In FIGS. 6 and 7, front and rear perspective views of the container 11 are shown wherein a third male lug 42 is shown added to the first and second male lugs 20 and 22 in FIG. 6. Also, in FIG. 7 a third female cavity 44 has been added to the first and second female cavities 26 and 28. The spacing between the third second male lug 22 and third male lug 42 is a unit of two as described in FIG. 3 and the spacing between the second female cavity 28 and the third female cavity is also a unit of two. By the proper spacing of the male lugs and female cavities the container 10 and container 11 can be interlocked with each other as used for building various objects. Also, while the containers 10 and 11 show two and three male lugs and female cavities it should be kept in mind that similar containers can have a variety of different numbers of lugs and cavities along with the necessary spacing without departing from the spirit and scope the invention as described herein. Also, the containers 11 as shown in FIGS. 6 and 7 can include female cavities in the third and forth side portions 30 and 32 as shown in FIGS. 4 and 5.

In FIGS. 8 and 9, a front view of a plurality of the containers 10 are shown interlocked to each other as might be used by children of all ages in playing building blocks. It should be kept in mind that these drawings show only a small example of the variety of ways the containers 10 and 11 can be used for play. In FIG. 8, two of the containers 10 are laid end to end with the first

side portion 18 and male lugs 20 and 22 facing upwardly. A third container 10 is disposed on top of the two containers 10 and coupled with the other two containers by the first female cavity 26 engaging the first male lug 20 of one container and the second female cavity 28 engaging the second male lug 22 of the other container.

In FIG. 9, two containers 10 are disposed adjacent each other with the first side portion 18 and male lugs 20 and 22 facing the viewer of the drawings. A third container 10 is disposed on its sides and at right angles to the other two containers 10 and coupled with the other two containers by the first female cavity 26 engaging the second male lug 22 of one container and the second female cavity 28 engaging the second male lug 22 of the other container. While the containers 10 are not shown coupled to the containers 11 shown in FIGS. 6 and 7, the coupling of the containers would be similar as described above.

FIGS. 10 and 12 illustrate a perspective view of the containers 10 shown in a six pack type arrangement ready for shipping and display wherein the packaging or a packaging wrap 46 play an important part of the subject invention. By this, the wrap 46 is used to interconnect with the male lugs 20, 22, and 42 when building various play objects. While in these drawings a six pack of the containers 10 is shown, the containers 10 can also be packaged in a four pack, eight pack, twelve pack, etc.

In FIG. 10 the wrap 46, which may be made of various types of packaging materials such as paper, plastic and other materials, incorporates a pattern of six equally spaced holes 48 for receiving the male lugs 20 and 22 of three of the containers 10 with the male lugs 20 and 22 of three of the adjacent containers extending outwardly from the opposite side of the six pack of containers 10. The holes 48 are spaced apart a unit of two. Also, the holes 48 may have different geometric configurations corresponding with the configuration of the male lugs. Further, the holes 48 in the wrap 46 may also be equally spaced for containers 10 having 3 or more male lugs.

In this example, the wrap 46 includes four sides 50 with a series of six holes 48 in each side. The sides 50 are divided by lines of weakness 51 which are used for folding the wrap 50 around the containers 10 during packaging and shipping. One of the sides 50 either on top or the bottom of the six pack is divided into opposite ends for easily opening the packaging. The divided side 50 may be closed and secured during packaging by any conventional manner known in the packaging art. Also, one end of the wrap 46 may be linked to another end of a different wrap 46 for extending a span of a toy bridge when using he containers 10 and wraps 46.

FIG. 11 is a perspective view of the wrap 46 used as a toy bridge with the divided side 50 having a series of three holes 48 at one end 52 of the wrap 46 and a series of three holes 48 at an opposite end 53 of the wrap 46. In this example, the three holes 48 are indexed and received around the male lugs 20, 22 and 42 of one of the containers 11 stacked on top and interconnected with another container 11. At the opposite end of the toy bridge, the opposite end 53 of the divided side 50 has three holes 48 indexed and received around the male lugs 20, 22 and 42 of another container 11 stacked on top and interconnected with a contained 11. Also, shown in this drawing is a pair of interconnected containers 10 wherein the males lugs 20 and 22 are received through a pair of the holes 48 in the wrap 46. As mentioned above, the containers 10 and 11 along with the packaging wrap 46 can be used in a variety of ways for making new and original play items.

In FIG. 12, the wrap 46 is shown with only one side 50 having a series of six holes 48 which is divided when the wrap 46 is removed from around the containers 10. The six holes 48 of the wrap 46 may be at the top or bottom of the completed package. In this example, the containers 10 are interlocked with each other in the six pack arrangement and the male lugs 20 and 22 are not received through the holes 48 in the wrap 46 as shown in FIG. 10.

Referring now to FIG. 13, when the wrap 46 is released from the six pack of containers 10 it can be unfolded and used as a bridge similar to the bridge shown in FIG. 11. Note in FIG. 13 and also in FIG. 11, a second wrap 46 may be interconnected to the male lugs 20, 22 and 42 for adding an additional span to the bridge.

In FIGS. 14 and 15, front and rear perspective views of an enlarged container 54 is illustrated. It should be kept in mind that the container 10, 11, and 54 may be of various sizes without departing from the spirit and scope of the invention. For example, the sizes may be a pint, quart, half gallon, gallon or larger or the container may hold various ounces of product therein. In this embodiment, the container 54 includes a hollow container body 56 with a top portion 58 and an opening 60 therein, a bottom portion 62 and a first side portion 64 with a pair of annular shaped male lugs 66 side by side horizontally and with a plurality of the pair of male lugs 66 along the vertical length of the container 54. Each of the male lugs 66 may be spaced a unit of 2 with the male lug 66 above it and beside it.

In FIG. 15, a rear perspective view of the container 54 is shown having a second side portion 68 with a pair of annular shaped female cavities 70 side by side horizontally and with a plurality of pairs of female cavities 70 along the vertical length of the container 54. Each of the female cavities 70 may be spaced a unit of 2 with the female cavity 70 above it and beside it. The second side portion 68 is on the opposite side of the container 58 from the first side portion 64. A third side portion 72 is shown in FIG. 14 and a fourth side portion 74 is shown in FIG. 15. When using a pair of the containers 54 or more, it is obvious that the male lugs 66 of one container 54 are designed to engage the female cavities 70 of another container 54 to build different play items.

In FIG. 16, a front perspective view of one of the interlocking container 10 is shown similar to the

container 10 shown in FIGS. 1 and 2. In this view, the annular shaped first male lug 20 has been replaced with the annular shaped female cavity 26 shown in FIG. 2. In FIG. 17, a rear perspective view of the container 10 is shown wherein the annular shaped first female cavity 26 has been replaced with the annular shaped male lug 20. The operation and spacing of the male lugs and female cavities of the container 10 shown in FIGS. 16 and 17 is the same as the container 10 shown in FIGS. 1 and 2.

From reviewing the above drawings, it can be appreciated that the containers 10, 11 and 54 along with the packaging wrap 46 may be used in a number of ways in interlocking with each other. As mentioned above, the spacing between the male lugs and the female cavities is important for the interlocking of each container. Also the spacing of the holes 48 in the wrap 46 must correspond to the spacing between each male lug so that the wrap 46 can engage the containers 10 and 11 as shown in FIGS. 11 and 13 and the container 56 shown in FIGS. 14 and 15.

Further, from reviewing the embodiments of the containers 10, 11 and 54 shown particularly in FIGS. 1, 2, 6, 7, 14, 15, 16 and 17, it can be appreciated that the male lugs can be disposed in one side of a container and interlock with female cavities in one side of a different container. The number of male lugs may be two, three or more. Likewise the number of female cavities may be two, three or more. Also, male lugs may be disposed on more than one side portion of the container, while the female cavities may be disposed on more than one side portion of a different container. The embodiment of the container 10 shown in FIGS. 16 and 17 can also have the configuration of a male lug and a female cavity in one side portion of a container and mate with a female cavity and a male lug in one side portion of a different container. Obviously there are a variety of other possible configurations of male lugs and female cavities on two or more different containers that would fall within the spirit and scope of the subject invention.

CLAIMS 12

1. A container for interlocking with one or more other containers for use as toy building blocks for children before and after the consumption of the product in the containers, the container comprising:

a hollow container body with a top portion and opening therein, a bottom portion, a first side portion, a second side portion on the opposite side from said first side portion, a third side portion and a fourth side portion;

a first male lug and a second male lug, said first and second male lugs extending outwardly from said first side portion; and

a first female cavity and a second female cavity, said first and second female cavities disposed in said second side portion.

2. The container as described in claim 1 wherein said top portion includes an upwardly extending tapered neck portion, said neck portion having connecting means for securing a cap thereon.

3. The container as described in claim 1 wherein said first and second male lugs and said first and second female cavities are centered along a center line through the length of the container.

4. The container as described in claim 1 wherein said hollow container body is in the form of a bottle.

5. The container as described in claim 1 further including a plurality of container bodies with said first and second male lugs therein and said first and second female cavities therein, said container bodies adapted for being interconnected and forming toy building blocks and the like.

6. The container as described in claim 3 where said first male lug and said first female cavity are centered

one unit from the top of said top portion, said first male lug is centered two units from said second male lug and said first female cavity is centered two units from said second female cavity, said second male lug and said second female cavity are centered one unit from the bottom of said bottom portion.

7. The container as described in claim 3 where said first male lug and said first female cavity are centered less than one unit from the top of said top portion, said first male lug is centered two units from said second male lug and said first female cavity is centered two units from said second female cavity, said second male lug and said second female cavity are centered less than one unit from the bottom of said bottom portion.

8. The container as described in claim 3 where said first and second male lugs and said first and second female cavities are centered one unit from said third and fourth side portions.

9. The container as described in claim 3 where said first and second male lugs and said first and second female cavities are centered less than one unit from said third and fourth side portions.

10. The container as described in claim 1 further including more than two male lugs extending outwardly from said first side portion.

11. The container as described in claim 1 further including more than two female cavities disposed in said second side portion.

12. The container as described in claim 1 further including
a first female cavity and a second female cavity, said first and second female cavities disposed in said third side portion.

13. The container as described in claim 1 further including
a first female cavity and a second female cavity, said first and second female cavities disposed in said fourth side portion.

14. The container as described in claim 1 wherein said first male lug and said second male lug are annular in shape and said first female cavity and said second female cavity are annular in shape.

15. The container as described in claim 2 wherein said upwardly extending tapered neck portion is annular in shape.

16. A container for interlocking with one or more other containers for use as toy building blocks for children before and after the consumption of the product in the containers, the container comprising:

a hollow container body with a top portion and opening therein, a bottom portion, a first side portion, a second side portion on the opposite side from said first side portion, a third side portion and a fourth side portion; and

a pair of first male lugs disposed horizontally side by side and a pair of second male lugs disposed horizontally side by side, said second male lugs disposed below said first male lugs, said first and second male lugs disposed on said first side portion.

17. The container as described in claim 16 further including
a pair of first female cavities disposed horizontally side by side and a pair of second female cavities disposed horizontally side by side and below said first female cavities, said first and second female cavities disposed in said second side portion.

18. The container as described in claim 17 further including a plurality of pairs of male lugs disposed along

a vertical length of said first side portion and a plurality of pairs of female cavities disposed along a vertical length of said second side portion.

19. A container and packaging, the container for interlocking with one or more other containers for use as toy building blocks for children before and after the consumption of the product in the containers, the container and packaging comprising:

a hollow container body with a top portion and opening therein, a bottom portion, a first side portion, a second side portion on the opposite side from said first side portion, a third side portion and a fourth side portion;

a first male lug and a second male lug, said first and second male lugs extending outwardly from said first side portion;

a first female cavity and a second female cavity, said first and second female cavities disposed in said second side portion; and

packaging wrap for receipt around a portion of said container body, said wrap having a plurality of holes therein, said holes dimensioned for receipt of said first and second male lugs therethrough.

20. The container and packaging as described in claim 19 wherein said wrap includes a plurality of sides and opposite ends, said opposite ends having said holes therein.

21. The container and packaging as described in claim 19 wherein said wrap includes a plurality of sides and opposite ends, each of said sides and opposite ends having holes therein.

22. The container and packaging as described in claim 19 wherein said holes in said wrap are spaced apart two units from each other.

23. The container and packaging as described in claim 19 wherein said holes are annular in shaped and equally spaced apart a unit of two.

24. The container and packaging as described in claim 19 where said first male lug and said first female cavity are centered one unit from the top of said top portion, said first male lug is centered two units from said second male lug and said first female cavity is centered two units from said second female cavity, said second male lug and said second female cavity are center one unit from the bottom of said bottom portion.

25. A container for interlocking with one or more other containers for use as toy building blocks for children before and after the consumption of the product in the containers, the container comprising:

a hollow container body with a top portion and opening therein, a bottom portion, a first side portion, a second side portion on the opposite side from said first side portion, a third side portion and a fourth side portion; and

a first male lug and a first female cavity, said first male lug extending outwardly from said first side portion, said first female cavity disposed in said first side portion.

26. The container as described in claim 25 further including a second male lug and a second female cavity, said second male lug extending outwardly from said second side portion, said second female cavity disposed in said second side portion.

27. The container as described in claim 25 wherein said top portion includes an upwardly extending tapered neck portion, said neck portion having connecting means for securing a cap thereon.

28. Containers for interlocking with one or more other containers for use as toy building blocks for children before and after the consumption of the product in the containers, the containers comprising:

a first hollow container body with a top portion and opening therein, a bottom portion, a first side portion, a second side portion on the opposite side from said first side portion, a third side portion and a fourth side portion;

a first male lug and a second male lug, said first and second male lugs extending outwardly from said first side portion of said first hollow container body;

a second hollow container body with a top portion and opening therein, a bottom portion, a first side portion, a second side portion on the opposite side from said first side portion, a third side portion and a fourth side portion; and

a first female cavity and a second female cavity, said first and second female cavities disposed in said first side portion of said second hollow container body.

29. The containers as described in claim 28 further including more than two male lugs extending outwardly from said first side portion of said first hollow container body.

30. The containers as described in claim 28 further including more than two female cavities disposed in said first side portion
of said second hollow container body.

31. The containers as described in claim 28 further including
a first female cavity and a second female cavity, said first and second female cavities disposed in said second, third, and fourth side portions of said second hollow container body.

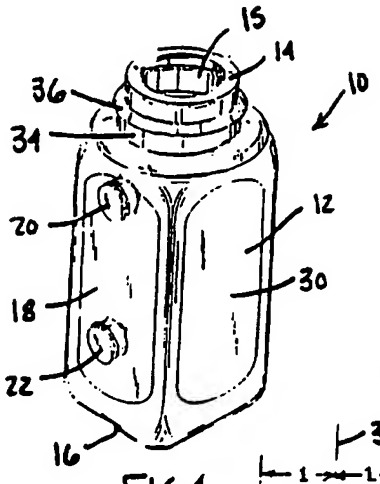

FIG. 1

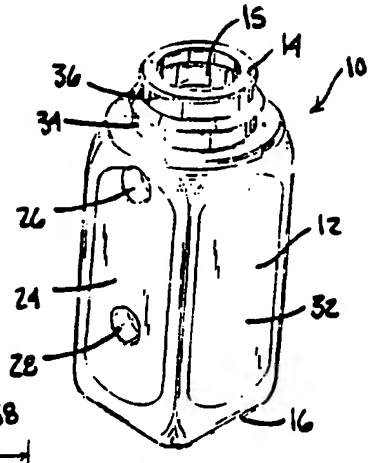

FIG. 2

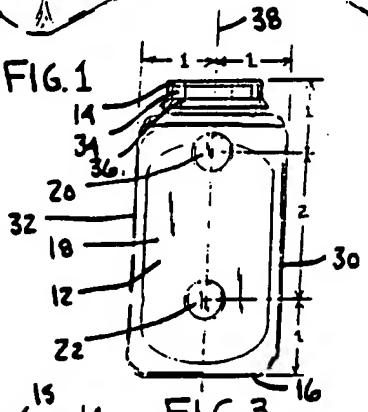

FIG. 3

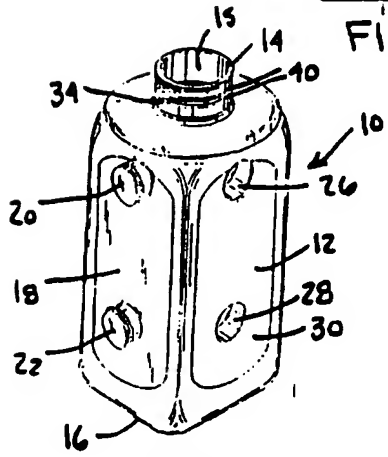

FIG. 4

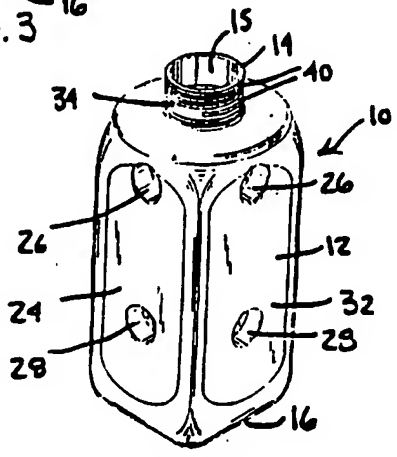

FIG. 5

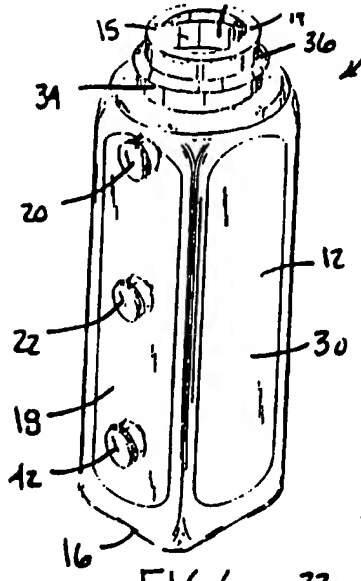

FIG. 6

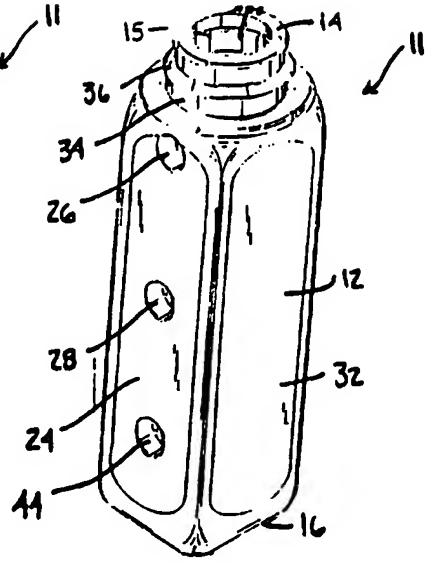

FIG. 7

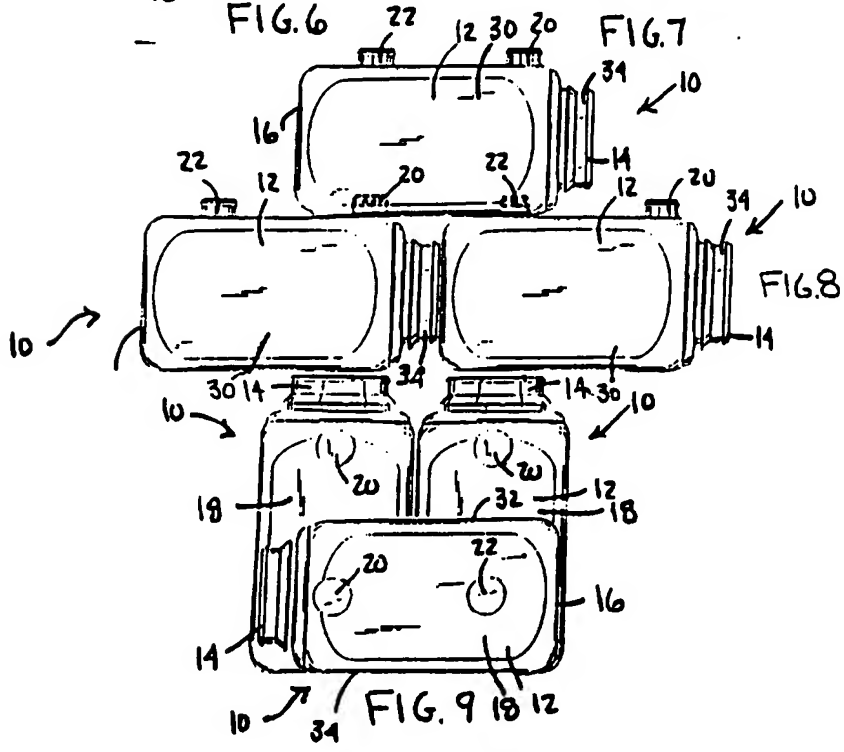

FIG. 8

FIG. 9

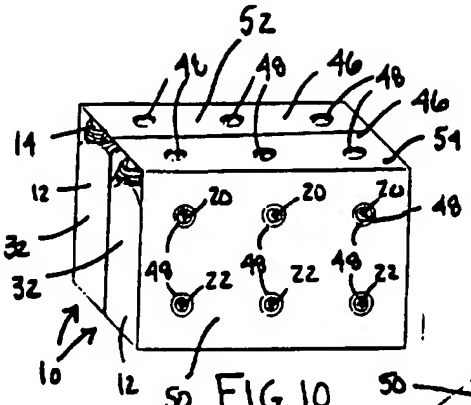

FIG. 10

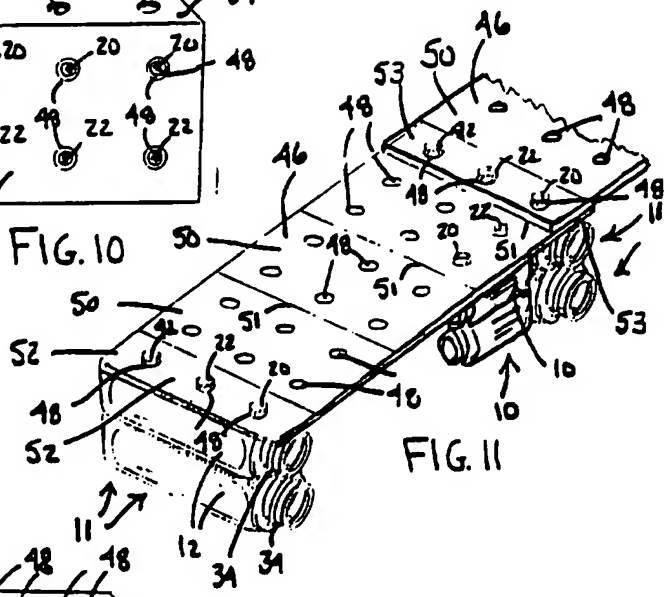

FIG. 11

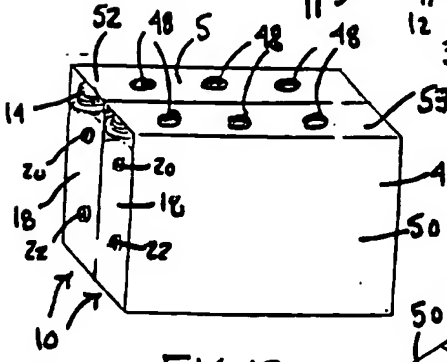

FIG. 12

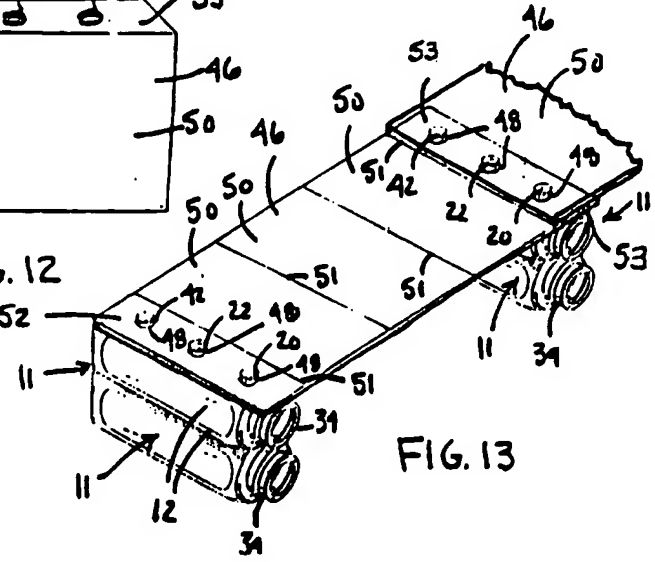

FIG. 13

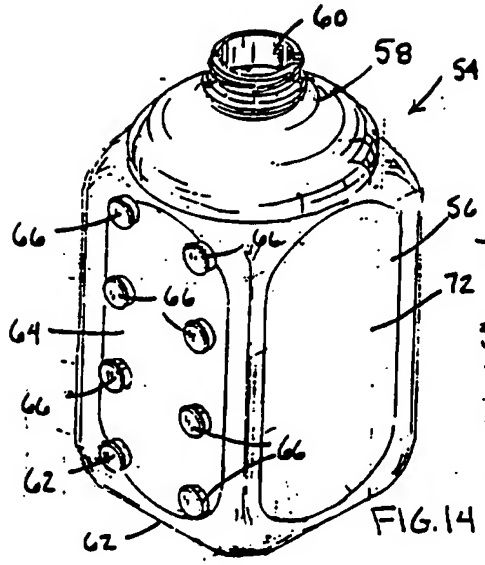

FIG. 14

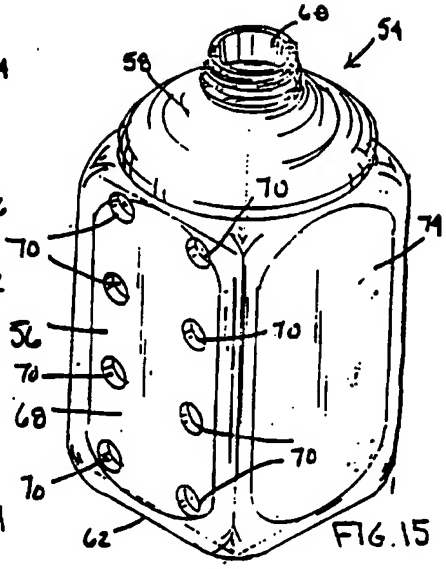

FIG. 15

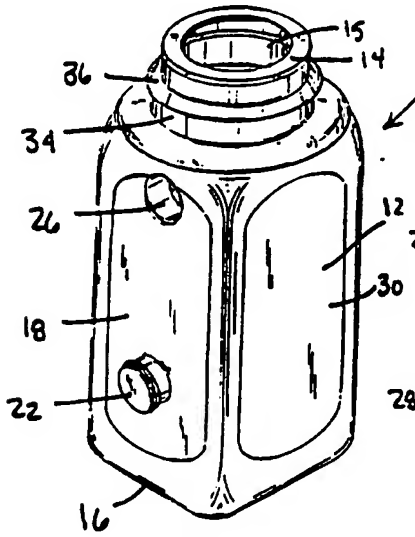

FIG. 16

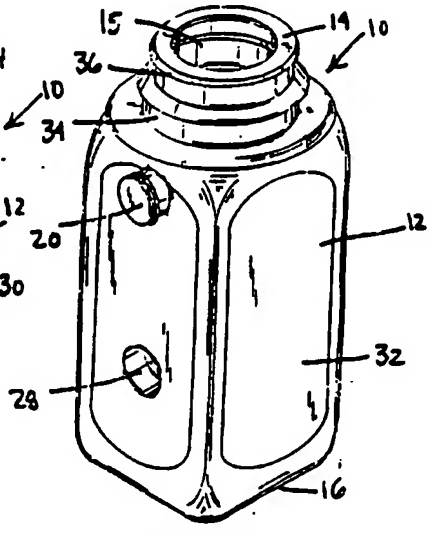

FIG. 17

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US95/15448

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :B65D 21/02
US CL :215/10 220/23.4

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : D21/108 446/121, 128

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US, A, 3,369,658 (HASSELMANN) 20 FEBRUARY 1968, SEE ENTIRE DOCUMENT	1-31
A	US, A, 4,919,296 (KIRSH) 24 APRIL 1990.	
A	US, A, 3,374,917 (TROY) 26 MARCH 1968.	
A	US, A, 5,148,932 (OREFICE) 22 SEPTEMBER 1992.	

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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Date of the actual completion of the international search
19 APRIL 1996

Date of mailing of the international search report
02 MAY 1996

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231
Facsimile No. (703) 305-3579

Authorized officer
for JOSEPH M. MOY
Sheila Veney
Paralegal Specialist
Group 3200

Telephone No. (703) 308-1145

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